

Smoking Practices and Attitudes Among Respiratory Therapy Students and Nursing Students

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Abstract

The purpose of this quantitative descriptive study was to compare the smoking status and views of smoking among nursing students and respiratory therapy students on the campus of Missouri Southern State University (MSSU). Additionally the purpose was to determine if the two healthcare fields share the same attitudes about smoking and compare the number of students who smoke in each program. 119 24-item questionnaire surveys were administered to nursing and respiratory therapy students at MSSU. Eight surveys were excluded because they were incomplete. Findings indicated that junior nursing students receive less education than senior nursing students, all of which receive even less formal smoking cessation training than respiratory therapy students. No statistical significance was indicated when comparing the number of students who smoke in each program. Implications for nursing included additional smoking cessation training and smoking related illness education to be implemented at the junior level.

Key words: nursing, students, respiratory therapy, college, smoking

Introduction

Tobacco use is the second leading cause of death in the world (Berkelmans, Burton, Page, and Worrall-Carter, 2010). There are over 400,000 smoking related deaths each year and smoking related medical expenses top \$75.5 billion each year (Morrell, Cohen & Dempsey, 2008). Nurses tend to have the highest number of tobacco users among healthcare professionals. In fact, it is reported that 10% to 20% of nurses in the United States smoke and have a more difficult time with quitting than healthcare professionals of other disciplines (Radsma & Bottorff, 2009).

Nurses are likely the ones educating patients on smoking cessation. Although some nurses smoke research shows that patients prefer smoking cessation education from non-healthcare professionals who smoke (Clark & McCann, 2008; Morrell et al., 2008). This poses a threat to the effectiveness of the education given to patients. Furthermore, healthcare professionals who smoke are less likely to offer advice to smoking patients (Morrell et al., 2008). In fact, research indicates that attitudes towards smoking from healthcare professionals are directly related to their own smoking status (Cauchi & Mamo, 2012). The literature suggests that nurses and nursing students should lead by example by not smoking as it directly relates to patient education effectiveness and also suggests ways to improve the number of current nurses who smoke and nursing students who smoke. This is relevant because nurses who smoke have been found to be less effective smoking cessation educators and patients prefer healthcare professionals who are smoke-free (Cauchi & Mamo, 2012; Morrell et al., 2008; and Radsma & Bottorff, 2009).

Registered nurses (RNs) function as both patient advocate and educator. Halcomb (2005) argues that “occupational health nurses can impact the tobacco-usage of the general population

through influential role models” (p. 2). It is not uncommon for a nurse to care for a patient who smokes or has a smoking-related chronic illness that needs education about smoking cessation. Likewise, respiratory therapists (RTs) spend more time learning about the lungs and the effects smoking has on the lung tissue. Respiratory therapists have thorough knowledge and exposure to patients needing breathing treatments, tracheostomies, and ventilators. This serves as a constant reminder of the causative effects of smoking and second-hand smoke.

It is important for RNs and RTs to practice what they preach in order to maintain their role model status. RNs and RTs who smoke invalidate the importance of not smoking when knowing the long term effects of smoking. Patients who discover their health care provider is of smoker status potentiate jeopardy of the patient-provider relationship. This makes smoking cessation education less valuable to the patient. Radsma and Bottoroff (2009) summarized that nurses who smoke are less effective in implementing patient education regarding nicotine dependence.

Literature Review

The literature presented three main points on smoking habits and attitudes among healthcare professionals and healthcare professional students. First, smoking rates of nurses and/or nursing students remains high when compared to other healthcare professionals or healthcare professional students (Berkleman et al., 2011; Biraghi & Tortorano, 2009; Morrell, Cohen, Bacchi, & West, 2005; and Piko, 2002). Second, nurses should be role models to the patients they educate (Chalmers et al., 2002; Clark & McCann, 2008; and Halcomb, 2005). Last, smoking cessation and education should be included in the education of healthcare professional students (Gordon & Mahabee, 2011; Patkar, Hill, Batra, Vergare, & Leone, 2003; Prokhorov et

al., 2003, and Riordan & Washburn, 1997). Overall, the literature agreed that smoking is a habit that needs to be addressed among healthcare professionals.

Foremost, literature suggested that nurses rank highest in smoking among health care providers (Berkelmans et al., 2011). The latter work correlates with Biraghi and Tortorano (2009) which concluded that forty-four percent of 812 nursing students smoked at the University of Milan. Likewise, in a study of students in Hungary, Piko (2002) concluded nursing students have the highest smoking rates when compared to medical and pharmacy students. This literature demonstrates that both nurses and nursing students have high smoking rates when compared to other healthcare professionals and other healthcare professional students.

Nurses need to be role models to patients since evidence suggests patients look to their healthcare providers to lead by example. Chalmers et al. (2002) conducted a cross-sectional study and concluded that nurses have the ability to influence patient practices. In fact, several previously published works argued that nurses need to be role models, stressing the importance of the patient-provider relationship and the affect that smoking nurses may have on a patient's choice to smoke (Clark & McCann, 2008; and Halcomb, 2005). Morrell et al.(2008) argued that smoke-free healthcare professionals are more desirable to patients. Nurses who smoke seem less credible and effective when providing smoking cessation education (Radsma & Bottoroff, 2009). Patients are looking for smoke-free nurses to be role models.

Educational institutions emphasize smoking cessation and education, as a solution for the issues of nurses who smoke. Gordon and Mahabee-Gittens (2011) argue that with thorough training on smoking cessation, health care providers are more proficient when educating their patients. Further, if smoking cessation education is provided to students, those who smoke may have a better chance of quitting. Similarly, both smoking and non-students who smoke will be

more effective when teaching patients about smoking cessation (Patkar et al., 2003; and Prokhorov et al., 2003).

Overall, authors suggested that it is important for nurses to be leaders by setting an example (Chalmers et al., 2002; Clark & McCann, 2008; and Halcomb, 2005). If nursing students are taught about smoking cessation during their nursing training then the number of students who smoke would decrease, as well as the number of nurses who smoke. Again, this training would be best implemented at a junior level serving dual role as smoking cessation for students who smoke as well as formal education for all students.

Methods

The purpose of this quantitative descriptive study was to determine if there is a significant difference between the numbers of students who smoke among the respiratory therapy students and nursing students attending Missouri Southern State University (MSSU) and to compare the students' attitudes towards smoking and education about smoking. The research question was how do the number of students who smoke does and attitudes towards smoking compare among respiratory therapy students and nursing students at MSSU? The hypothesis was respiratory therapy students will smoke at a lower rate when compared to nursing students but both student groups will have similar views on smoking practices. The null hypothesis was respiratory therapy students will not smoke at a lower rate when compared to nursing students and both student groups will have differing views on smoking practices.

The Missouri Southern State University library website was utilized to locate articles for this paper. Articles were searched through the Summon Journal Article filter. Key topics included 'nurses who smoke,' 'nurses as role models' and 'smoking nursing students.' Over 20,000 peer-reviewed, scholarly publications were identified. The search was further refined to

full-text articles. Journal articles were narrowed down and selected based on the following criteria: studies that showed the number of nurses and nursing students who smoke compared to other healthcare professionals and students; information about the smoking rates of RTs; studies that suggested a solution to decreasing the number of students who smoke and nurses who smoke. A total of twenty-one articles were reviewed for the purpose of this study.

A written questionnaire survey was distributed to nursing and respiratory therapy students on the campus of Missouri Southern State University. With MSSU Institutional Review Board approval, all participants surveyed were age 18 or older and either a junior or senior in their respective program. Participants completed an informed consent prior to administration of the survey (refer to Appendix A). Surveys administered to the nursing department were self-administered by the author. Surveys administered to the RT students were proctored by the faculty of the department of respiratory therapy.

Demographic information included age groups as 18-23, 24-30, or >30; gender; field of study as nursing or respiratory therapy; year in program as either junior or senior; and smoking status as either non-smoker or smoker. The twenty-four item questionnaire consists of two sections 1) education and 2) attitudes (refer to Appendix B). This data was analyzed using the Predictive Analytics Software (PASW) by method of chi-squared and crosstabulation for 111 of the 119 administered surveys. Eight surveys were excluded for incomplete data.

The two model surveys being replicated and combined were from Chalmers et al. (2002) and Cauchi and Mamo (2012). Permission to use Chalmers' questionnaire with modification as well as the Global Health Professional Students Survey was obtained. Both studies offer questions concerning smoking attitudes and smoking habits. These questionnaires were modified

as some questions were not appropriate for this thesis sample and would not offer enough data if used alone.

Results

Data was analyzed using Predictive Analytical SoftWare (PASW) by chi-square method. Demographic information concluded that the number of students in the nursing program is more than two times the number of students in the RT program. Both programs have 53% first year students and 47% second year students. Also, the percentage of students who smoke in the nursing program is 10% compared to 3% of students who smoke in the RT program. The age range of students is evenly distributed through the 18-30 age range, with roughly one in five students being over the age of 30.

Further data analysis concluded the number of students who smoke in the respiratory program compared to the nursing program were not significant ($\chi^2 [1] = 1.498, p = 0.221$) (Appendix G). 10% of nursing students reported being a smoker compared to 3% of RT students. Significant results were found when comparing the number of junior nursing students who smoke compared to the number of senior nursing students who smoke ($\chi^2 [1] = 4.215, p = 0.040$) (Appendix D). Other significant findings include differences in nursing students by year on discussion of reasons why people smoke ($\chi^2 [2] = 6.673, p = 0.036$), the importance of providing educational materials ($\chi^2 [2] = 6.766, p = 0.034$), and whether or not health professionals who smoke are less likely to advise patients to stop smoking ($\chi^2 [2] = 9.680, p = 0.008$). Refer to Appendix E.

When comparing data between respiratory therapy students and nursing students there were significant findings on question two, did you discuss reasons why people smoke ($\chi^2 [2] = 10.402, p = 0.006$); question four, have you received formal training in smoking cessation ($\chi^2 [2]$

= 38.297, $p = 0.000$); and question twenty-two, do healthcare professionals set non-smoking example ($\chi^2 [2] = 9.455, p = 0.009$). Refer to Appendix F. No other significant results were concluded from this study.

Discussion

Based on the results of this study, it can be inferred that both nursing students and RT students smoked at lower rates when compared to reviewed studies. However, junior nursing students smoke at a significantly higher rate than senior nursing students. Based on the education and attitudes part of the questionnaire, one may speculate that this finding may be attributed to the fact that junior students report less education on providing educational materials to patients and identifying why some patients smoke. Junior nursing students also accounted that they did not recognize that healthcare professionals advise patient about smoking cessation which was at a lower rate than senior nursing students. This may also be related to a confidence level in senior nursing students from additional education on the topic of smoking. This result may be expected since junior nursing students would be less educated about smoking related education. Further, senior nursing students smoked at rates lower than junior nursing students. This too could be attributed to increased education. An important factor to consider, however, is that the retention rate has some affect on the number of junior students who smoke not making it to their senior year, thus lowering the number of senior students who smoke.

Another important finding based on the questionnaire was RT students reported they receive more smoking related education than nursing students. This is also expected, however the significance in the difference of answers between the two student groups on whether healthcare professionals set a non-smoking may indicate that RT students are confident in their

ability to set the non-smoking example but are unsure that all healthcare professionals set the non-smoking example.

Limitations

Identified limitations for this study consist of the exclusion and inclusion criteria as well as control group and questionnaire administration. Excluded in this study were the RN to Bachelor of Science (BSN) students and incomplete questionnaires. RN-BSN students may have offered more insight to age and smoking status, as some research indicates that work-related stress attributes to nurses who smoke. Included in the study were only MSSU RT and nursing students. Results may have represented the target population of nursing students if students from surrounding universities or college were surveyed. Also, if students from the dental hygiene, paramedic, and radiology departments would have been surveyed then ranking of nursing students compared to other healthcare professional students could have been defined. If there would have been a control group, such as non-healthcare professional student group like business or mathematics then the significance of the education, attitudes and smoking status may have yielded additional results. Last, the questionnaire was self-administered by the author to the nursing department but by RT faculty to RT students. There is a possibility that if the surveys had been administered by the same methods with both groups, different findings might have resulted.

Implications for Nursing

Although smoking rates among nurses are lower than the general population there continues to be implications to decrease the smoking rates even lower. It is indicated that nurses who smoke also need supplementary education to become more effective mentors to patients who smoke (Berkelmans et al., 2010). MSSU nursing and RT students smoked at lower rates

when compared to previous groups in research, however, these rates still need improvement. Research suggests that one way to reduce the number of nurses who smoke is through additional training and education of students (Clark & McCann, 2008). If MSSU students are exposed to smoking related illnesses and smoking cessation at the junior level then the number of students who smoke may possibly decrease. Also, junior students' confidence in their education and impact of patients may increase. Further, the knowledge nurses receive about smoking effects and smoking cessation may enhance their role as nurse educator (Nakata et al., 2010). Cauchi and Mamo (2012) recommend undergraduate programs emphasize clinical and community-based smoking cessation education.

It is through education that patients and communities are empowered to make informed health decisions. Smoking is a risk that when modified may ensure a healthier lifestyle and prevent related illnesses. Through effective communication and education patients can reach smoking cessation goals. It is through proper smoking cessation education, education about smoking risks, and smoking cessation offerings that will support decreasing the number of students who smoke and thus decrease the number of nurses who smoke (Berkelmans et al., 2010; Cauchi & Mamo, 2012) .

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Appendix A: Consent Form

Your participation is requested in a study on smoking habits and attitudes towards smoking..

If you are not 18 or older and are not in the Respiratory Therapy Program or Nursing Program at Missouri Southern State University, please refrain from participating in this study and turn this form over now. Your participation is on a voluntary basis and you will not be penalized in any form if you decide to withdrawal from the study at any point. If at any time during your participation you choose to withdraw from the study, please turn your paper over and wait for the rest of the participants to finish.

Your participation will consist of reading and filling out a questionnaire. First, you will complete Demographics section which is comprised of checking an answer that fits your age, sex, program, year in program, and smoking status. Next, you will read through a list of 24 questions or statements and decide if you agree (yes), disagree (no), or are unsure. Expected completion time of the experiment is five to ten minutes. Please answer all items to the best of your ability. Individual answers will be kept confidential. Please refrain from putting your name or any other identifying marks on any of your papers. In an effort to prevent any skewed results by future participants, please do not discuss the details of this study with any other students.

Results from this study will be posted on a bulletin board outside of the nursing department offices on the second floor of the Health Sciences Building next semester by 05/10/12.

No adverse effects are expected as a result of participation in this study. If adverse effects are experienced or you have any questions, please contact my faculty research supervisor:

Lauren Haggard HSB: 250 417-625-3076 Haggard-L@mssu.edu

I acknowledge that by signing below I agree to participate in this study.

Signature: _____

Date: _____

Print Name here: _____

Appendix B: Questionnaire Survey

Please check one box under each demographic section

Demographics

Age:

- 18-23
- 24-30
- >30

Gender

- Female
- Male

Field of Study

- Nursing
- Respiratory Therapy

Year in Program

- First year
- Second year

Smoking Status

- Non-smoker
- Smoker

Please check one box for each questionnaire item

Questionnaire

Education

	<u>Yes</u>	<u>No</u>	<u>Unsure</u>
1) During classes, were you taught about danger of smoking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2) Did you discuss reasons why people smoke?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3) Did you learn that is important to record tobacco use history?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4) Have you ever received formal training in smoking cessation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5) Did you learn it is important to provide educational quitting materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6) Have you ever heard of nicotine replacement therapies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Attitudes</i>	<u>Yes</u>	<u>No</u>	<u>Unsure</u>
7) Should tobacco advertising be completely banned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8) Do you agree with smoking ban in restaurants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9) Do you agree with smoking bans in bars?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10) Do you think smoking in all public places should be banned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11) Should health professionals get cessation training?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12) Are health professional's models?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13) Should health professionals give quitting advice routinely?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) Do health professionals have a role in giving advice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) Do chances of quitting improve of health professional gives advice?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) Are health professionals who smoke less likely to advice patients to stop smoking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) There are health risks with smoking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18) Smoking is a health risk to others?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19) Never too late to quit smoking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20) Quitter should seek smoke-free environments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21) Quitters need to minimize stress?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22) Healthcare professionals set non-smoking example?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23) Respiratory therapists set non-smoking example?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24) Nurses set non-smoking example?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix C: Debriefing Form

Thank you for your participation. You have just participated in an experiment that compares nursing students and respiratory therapy students' smoking practices and attitudes towards smoking. The results of this experiment will be available on the bulletin board outside of the nursing department offices on the second floor of the Health Sciences building next semester by 05/10/13, but no individual results will be given. All confidentiality will be maintained.

The two model surveys being replicated and combined are from Chalmers, Seguire and Brown's *Tobacco Use and Baccalaureate Nursing Students: A Study of Their Attitudes, Beliefs and Personal Behaviours* (2002) and Cauchi and Mamo's *Smoking Health Professional Student: An Attitudinal Challenge for Health Promotion* (2012). Permission to use both Chalmers' research tool, as well as the Global Health Professional Student Survey from Cauchi's study have been obtained. Both studies offer questions concerning smoking attitudes and smoking habits, as well as smoking education.

These questionnaires have been modified as some questions are not appropriate for this thesis sample and would not offer enough data if used alone. The sample includes both junior and senior nursing and respiratory therapy students attending Missouri Southern State University.

Current research suggests that nursing students have the highest number of smokers when compared to other health professional students. However to research indicates whether or not respiratory therapy students smoke. The literature further suggests that with proper smoking cessation education students who smoke are more likely to quit and all students are able to better educate their patients. After analyzing the test results of this survey, I will be writing my senior thesis paper to define the comparison between nursing students and respiratory therapy students' smoking practices and attitudes towards smoking.

Thank you for your participation and please let me know if you have any further questions.

Appendix D: Smoking Nursing Students by Year

Smoking * Year * Program Crosstabulation

Program				Year		Total
				First year	Second year	
Nursing	Smoking	Non-Smoker	Count	35	36	71
			Expected Count	37.7	33.3	71.0
	Smoker	Count	7	1	8	
		Expected Count	4.3	3.7	8.0	
	Total	Count	42	37	79	
		Expected Count	42.0	37.0	79.0	
RT	Smoking	Non-Smoker	Count	16	15	31
			Expected Count	16.5	14.5	31.0
	Smoker	Count	1	0	1	
		Expected Count	.5	.5	1.0	
	Total	Count	17	15	32	
		Expected Count	17.0	15.0	32.0	

Chi-Square Tests

Program		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Nursing	Pearson Chi-Square	4.215 ^a	1	.040		
	Continuity Correction ^b	2.820	1	.093		
	Likelihood Ratio	4.759	1	.029		
	Fisher's Exact Test				.061	.043
	Linear-by-Linear Association	4.161	1	.041		
	N of Valid Cases	79				
RT	Pearson Chi-Square	.911 ^c	1	.340		
	Continuity Correction ^b	.000	1	1.000		
	Likelihood Ratio	1.293	1	.255		
	Fisher's Exact Test				1.000	.531
	Linear-by-Linear Association	.882	1	.348		
	N of Valid Cases	32				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.75.

b. Computed only for a 2x2 table

c. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .47.

Appendix E: Significant Questions by Year in Program

Crosstab

Program				Year		Total
				First year	Second year	
Nursing	Q2	Yes	Count	20	24	44
			Expected Count	23.4	20.6	44.0
		No	Count	21	9	30
			Expected Count	15.9	14.1	30.0
		Unsure	Count	1	4	5
			Expected Count	2.7	2.3	5.0
	Total		Count	42	37	79
			Expected Count	42.0	37.0	79.0
RT	Q2	Yes	Count	14	14	28
			Expected Count	14.9	13.1	28.0
		No	Count	3	1	4
			Expected Count	2.1	1.9	4.0
	Total		Count	17	15	32
			Expected Count	17.0	15.0	32.0

Chi-Square Tests

Program		Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Nursing	Pearson Chi-Square	6.674 ^a	2	.036		
	Likelihood Ratio	6.912	2	.032		
	Linear-by-Linear Association	.401	1	.527		
	N of Valid Cases	79				
RT	Pearson Chi-Square	.878 ^b	1	.349		
	Continuity Correction ^c	.161	1	.688		
	Likelihood Ratio	.921	1	.337		
	Fisher's Exact Test				.603	.350
	Linear-by-Linear Association	.851	1	.356		
	N of Valid Cases	32				

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.34.

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.88.

c. Computed only for a 2x2 table

Crosstab

Program				Year		Total
				First year	Second year	
Nursing	Q5	Yes	Count	35	37	72
			Expected Count	38.3	33.7	72.0
		No	Count	6	0	6
			Expected Count	3.2	2.8	6.0
		Unsure	Count	1	0	1
			Expected Count	.5	.5	1.0
	Total		Count	42	37	79
			Expected Count	42.0	37.0	79.0
RT	Q5	Yes	Count	17	15	32
			Expected Count	17.0	15.0	32.0
	Total		Count	17	15	32
			Expected Count	17.0	15.0	32.0

Chi-Square Tests

Program		Value	df	Asymp. Sig. (2-sided)
Nursing	Pearson Chi-Square	6.766 ^a	2	.034
	Likelihood Ratio	9.443	2	.009
	Linear-by-Linear Association	6.057	1	.014
	N of Valid Cases	79		
RT	Pearson Chi-Square	. ^b		
	N of Valid Cases	32		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .47.

b. No statistics are computed because Q5 is a constant.

Crosstab

Program				Year		Total
				First year	Second year	
Nursing	Q16	Yes	Count	18	23	41
			Expected Count	21.8	19.2	41.0
		No	Count	12	1	13
			Expected Count	6.9	6.1	13.0
		Unsure	Count	12	13	25
			Expected Count	13.3	11.7	25.0
	Total		Count	42	37	79
			Expected Count	42.0	37.0	79.0
RT	Q16	Yes	Count	10	5	15
			Expected Count	8.0	7.0	15.0
		No	Count	5	6	11
			Expected Count	5.8	5.2	11.0
		Unsure	Count	2	4	6
			Expected Count	3.2	2.8	6.0
	Total		Count	17	15	32
			Expected Count	17.0	15.0	32.0

Chi-Square Tests

Program		Value	df	Asymp. Sig. (2-sided)
Nursing	Pearson Chi-Square	9.680 ^a	2	.008
	Likelihood Ratio	11.306	2	.004
	Linear-by-Linear Association	.397	1	.529
	N of Valid Cases	79		
RT	Pearson Chi-Square	2.308 ^b	2	.315
	Likelihood Ratio	2.345	2	.310
	Linear-by-Linear Association	2.182	1	.140
	N of Valid Cases	32		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.09.

b. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.81.

Appendix F: Significant Questions by Program

Crosstab

			Program		Total
			Nursing	RT	
Q2	Yes	Count	44	28	72
		Expected Count	51.2	20.8	72.0
	No	Count	30	4	34
		Expected Count	24.2	9.8	34.0
	Unsure	Count	5	0	5
		Expected Count	3.6	1.4	5.0
Total		Count	79	32	111
		Expected Count	79.0	32.0	111.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.402 ^a	2	.006
Likelihood Ratio	12.478	2	.002
Linear-by-Linear Association	9.965	1	.002
N of Valid Cases	111		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.44.

Crosstab

			Program		Total
			Nursing	RT	
Q4	Yes	Count	6	20	26
		Expected Count	18.5	7.5	26.0
	No	Count	68	11	79
		Expected Count	56.2	22.8	79.0
	Unsure	Count	5	1	6
		Expected Count	4.3	1.7	6.0
Total		Count	79	32	111
		Expected Count	79.0	32.0	111.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	38.297 ^a	2	.000
Likelihood Ratio	36.072	2	.000
Linear-by-Linear Association	29.790	1	.000
N of Valid Cases	111		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.73.

Crosstab

			Program		Total
			Nursing	RT	
Q22	Yes	Count	69	27	96
		Expected Count	68.3	27.7	96.0
	No	Count	8	0	8
		Expected Count	5.7	2.3	8.0
	Unsure	Count	2	5	7
		Expected Count	5.0	2.0	7.0
Total		Count	79	32	111
		Expected Count	79.0	32.0	111.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.455 ^a	2	.009
Likelihood Ratio	10.887	2	.004
Linear-by-Linear Association	2.042	1	.153
N of Valid Cases	111		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 2.02.

Appendix G: Smoking Status by Program

Smoking * Program Crosstabulation

			Program		Total
			Nursing	RT	
Smoking	Non-Smoker	Count	71	31	102
		Expected Count	72.6	29.4	102.0
	Smoker	Count	8	1	9
		Expected Count	6.4	2.6	9.0
Total	Count	79	32	111	
	Expected Count	79.0	32.0	111.0	

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.498 ^a	1	.221	.443	.206
Continuity Correction ^b	.706	1	.401		
Likelihood Ratio	1.770	1	.183		
Fisher's Exact Test					
Linear-by-Linear Association	1.485	1	.223		
N of Valid Cases	111				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.59.

b. Computed only for a 2x2 table